

WHAT IS CLAIMED IS:

1        1.        A waveform monitoring apparatus, comprising:  
2                a hydraulic cylinder, incorporated in an injection molding device for  
3        ejecting a molding material;  
4                a sensor, generating pressure data of the hydraulic cylinder;  
5                a determinant, forming a measured value waveform based on the  
6        pressure data, and determining that whether the pressure data exceeds a  
7        reference pressure waveform by a predetermined range; and  
8                a marking applier, applying a marking to an excess portion of the  
9        measured value waveform determined by the determinant.

1        2.        The waveform monitoring apparatus as set forth in claim 1, further  
2        comprising a display which displays the measured value waveform having the  
3        excess portion to which the marking is applied.

1        3.        The waveform monitoring apparatus as set forth in claim 1, further  
2        comprising a sorter which sorts a product formed from the molding material,  
3                wherein the determinant outputs a determination signal indicating  
4        whether the pressure data exceeds the reference pressure waveform by the  
5        predetermined range to the sorter.

1        4.        The waveform monitoring apparatus as set forth in claim 1, wherein  
2        the determinant stops an injecting operation of the injection molding device  
3        when the measured value waveform in which the pressure data exceeds a

4 reference pressure waveform by a predetermined range is continuously  
5 detected more than a predetermined times.

1 5. The waveform monitoring apparatus as set forth in claim 1, wherein  
2 the determinant sets a upper limit range and a lower limit range with respect to  
3 the reference pressure waveform as the predetermined range.

1 6. The waveform monitoring apparatus as set forth in claim 1, further  
2 comprising a storage which stores the measured value waveform to which the  
3 marking is applied.

1 7. A method for monitoring a waveform, comprising the steps of:  
2 generating pressure data of a hydraulic cylinder incorporated in an  
3 injection molding device for ejecting a molding material;  
4 forming a measured value waveform based on the pressure data;  
5 determining that whether the pressure data exceeds a reference  
6 pressure waveform by a predetermined range; and  
7 applying a marking to an excess portion of the measured value  
8 waveform determined in the determinant step.

1 8. The method as set forth in claim 7, further comprising the step of  
2 displaying the measured value waveform having the excess portion to which  
3 the marking is applied.

1 9. The method as set forth in claim 7, further comprising the step of

2 outputting a determination signal to a sorter which sorts a product formed from  
3 the molding material,  
4 wherein the determination signal indicates that whether the pressure  
5 data exceeds the reference pressure waveform by the predetermined range.

1 10. The method as set forth in claim 7, further comprising the step of  
2 stopping an injecting operation of the injection molding device when the  
3 measured value waveform in which the pressure data exceeds a reference  
4 pressure waveform by a predetermined range is continuously detected more  
5 than a predetermined times.

1 11. The method as set forth in claim 7, wherein the predetermined range  
2 is set a upper range and a lower range with respect to the reference pressure  
3 waveform.

1 12. The method as set forth in claim 1, further comprising the step of  
2 storing the measured value waveform to which the marking is applied.